The influence of intraoral devices on static performance in golf athletes – pilot study

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Introduction: The use of intraoral removable devices can lead to postural corrections through stomatognatic system information sent to the central nervous system, which interprets and sends to the muscle groups a neuromuscular response [1]. This can bring benefits for golf athletes, because this sport requires a high postural control and its income is dependent directly from the correct alignment of body segments and their dynamic relationship. The aim of this work was to analyse whether the use of an intraoral device, totally adapted, in centric relation, causes changes in static posture.
Materials and methods: After study approval by the Ethic Commission of the Cooperativa de Ensino Superior Egas Moniz, athletes from the Centro Nacional de Formação de Golfe do Jamor (CNFGJ) were invited to participate in this study. After obtaining consent, an oral clinical observation was performed with the application of the Diagnostic Criteria for Temporomandibular Disorder (DC/TMD). Inclusion criteria were athletes of both genders who have signed informed consent with handicap <20 or professional. Exclusion criteria were athletes with Kennedy–Applegate Class I or II edentulous athletes. Individualized and equilibrated intraoral removable devices were developed for each athlete. The postural parameters of each athlete were collected using a pressure platform (RsScan) in four conditions: eyes open and eyes closed, with and without intraoral device. The athletes performed randomly 3 repetitions of each condition for 66 s each, and the centre of pressure (CP) sway velocity was measured. Linear mixed models were used to analyse the effects of the utilization of the intraoral device and presence of visual information on the CP velocity. Significance of these effects was evaluated through a type III analysis of variance with Kenward–Roger approximation for the degrees of freedom.
Results: There were included in this study 17 Golf athletes, 15 men and 2 women with a mean age of 26.2 (± 6.74) years. The developed model showed to be significantly different from the null model (χ^2 (3) = 32.344, $p \leq 4.428e-07$). Analysis of variance shows that both the effect of intraoral device use and the effect of the presence of visual information influences the model significantly ($F(1,45) = 4.235$, $p \leq .045$ and $F(1,45) = 38.895$, $p \leq 1.39e-07$, respectively).
Discussion and conclusion: The use of intraoral devices appears to positively influence the posture, proving the interconnection of the stomatognathic system with the muscular system in balance control, through the neuromuscular responses sent by the central nervous system. In our sample the use of intraoral devices seems to positively influence the posture, meeting the interconnection of the stomatognathic system with the balance control system.

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References

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Class III malocclusion patients: an interceptive treatment

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Introduction: The treatment of skeletal class III malocclusions has been considered a challenge, due to patients' unpredictable and potentially unfavourable growing pattern [1]. Usually, skeletal class III patients present a maxillary hypoplasia or retrusion, with a normal or minimally prognathic mandible [2]. Many orthodontic and orthopaedic treatment approaches regarding skeletal class III malocclusion can be found in the literature, including intraoral and extraoral appliances [3,4]. The objective of this paper is to examine whether maxillary protraction leads to skeletal changes by comparing treatment and control groups during and after facemask therapy.